

CLAIMS

1 1. A workstation for mounting and operating a plurality of cordless power tools
2 comprising:
3 a substantially planar work support platform configured to support a work
4 piece and a cordless power tool;
5 a substantially planar swing arm pivotally coupled to the work support
6 platform;
7 a battery charging station coupled to the work support platform and
8 configured to removably connect to an external AC power source, the
9 battery charging station supplying DC power for cordless power tool
10 operation;
11 an on/off switch coupled to the battery charging station for regulating the flow
12 of DC power to a cordless power tool;
13 a safety switch coupled to the on/off switch for regulating the flow of DC
14 power to a cordless power tool, both the on/off switch and the safety
15 switch allowing a cordless power tool on/off switch to be safely
16 disengaged when a cordless power tool is mounted to the workstation;
17 a power block coupled to the safety switch for removably connecting to the
18 cordless power tool; and

1 at least one mounting plate removably coupled to the swing arm, the
2 mounting plate configured to removably couple to a cordless power
3 tool.

1 2. The workstation of claim 1, wherein the work support platform defines a
2 platform opening through the work support platform, the platform opening
3 configured to removably receive the swing arm in a flush relationship.

1 3. The workstation of claim 2, wherein the work support platform further
2 comprises at least one flange running at least partially along at least one
3 internal edge of the work support platform defining the platform opening
4 upon which the swing arm removably seats.

1 4. The workstation of claim 3, wherein the platform opening is substantially
2 rectangular in shape, and wherein the at least one flange comprises one of:
3 a right angle flange running around an internal short edge and an adjacent
4 internal long edge of the work support platform; and
5 a single flange running along only a long internal edge of the work support
6 platform.

1 5. The workstation of claim 1, wherein the swing arm is a U-shaped platform
2 comprising a base member and a pair of spaced apart parallel arms defining a
3 swing arm opening, each arm extending perpendicularly from an end of the
4 base member.

1 6. The workstation of claim 5, wherein the swing arm comprises at least one
2 securing track coupled on a bottom face of the swing arm adjacent to at least a
3 portion of internal edges of the base member and the parallel arms.

1 7. The workstation of claim 6, wherein the at least one securing track comprises
2 at least one wall protruding perpendicularly outward from the bottom face of
3 the swing arm and an inwardly protruding flange member formed on the
4 exposed end of the at least one wall, thereby defining at least one channel
5 between the flange member, the wall, and the swing arm.

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1 8. The workstation of claim 6, wherein the at least one securing track comprises
2 one of:
3 a continuous securing track extending along and adjacent to the internal edges
4 of the base member and the parallel arms of the swing arm defining
5 swing arm opening; and
6 three separate and distinct securing tracks, each distinct securing track
7 extending at least partially along and adjacent to the internal edges of
8 the base member and the parallel arms defining swing arm opening
9 respectively.

1 9. The workstation of claim 1, wherein the swing arm is pivotable to any angle
2 with respect to the work support platform from 0° to approximately 90° for
3 ease in cordless power tool mounting and dismounting.

1 10. The workstation of claim 1, wherein the swing arm comprises at least one
2 securing track coupled on a bottom face of the swing arm.

1 11. The workstation of claim 10, wherein the at least one securing track
2 comprises at least one wall protruding perpendicularly outward from the
3 bottom face of the swing arm and an inwardly protruding flange member
4 formed on the exposed end of the at least one wall, thereby defining at least
5 one channel between the flange member, the wall, and the swing arm.

1 12. The workstation of claim 10, wherein the at least one securing track
2 comprises one of:
3 a continuous securing track extending along and adjacent to the internal edges
4 of the base member and the parallel arms of the swing arm defining
5 swing arm opening; and
6 three separate and distinct securing tracks, each distinct securing track
7 extending at least partially along and adjacent to the internal edges of
8 the base member and the parallel arms defining swing arm opening
9 respectively.

1 13. The workstation of claim 1, wherein the battery charging station comprises an
2 AC/DC converter and a battery charging module coupled to an output side of
3 the AC/DC converter, wherein the on/off switch is coupled to the battery
4 charging module, and wherein the workstation further comprises an AC plug
5 coupled to an input side of the AC/DC converter for removably coupling the
6 AC/DC converter to an external AC power source for supplying DC power to
7 the battery charging module for recharging or for supplying DC power to a
8 cordless power tool.

1 14. The workstation of claim 13, wherein the battery charging module comprises
2 a power relay for directing DC power:
3 to charge at least one battery when removably coupled to the battery charging
4 module and when the AC plug is removably coupled to the external
5 AC power source;
6 to operate a cordless power tool when a DC circuit to the power block is
7 complete and the power block is removably connected to the cordless
8 power tool and when the AC plug is removably coupled to the external
9 AC power source; and
10 from the at least one battery to a cordless power tool when the at least one
11 battery is removably coupled to the battery charging module and when
12 the AC plug is removably coupled to the external AC power source.

1 15. The workstation of claim 3, wherein the on/off switch is a rocker switch
2 located on a front external edge of the work support platform and the safety
3 switch is a pushbutton switch located on the at least one flange so that it is
4 depressed when the swing arm is pivoted flush with the work support platform
5 and released when the swing arm is pivoted away from the work support
6 platform.

1 16. The workstation of claim 1, wherein the power block comprises a corded,
2 modular, insulated terminal block, with a cord end connected to the safety
3 switch and a free, terminal block end configured to connect with a cordless
4 power tool.

1 17. The workstation of claim 1, further comprising at least one battery removably
2 coupled to the battery charging station for supplying DC power to a cordless
3 power tool.

1 18. The workstation of claim 1, wherein the at least one mounting plate is one of a
2 single, universal mounting plate configured to accommodate a plurality of
3 cordless power tools and a plurality of interchangeable mounting plates, each
4 one configured to accommodate a particular cordless power tool.

1 19. The workstation of claim 7, wherein the at least one mounting plate is
2 removably mounted in the at least one channel in a tongue and groove
3 relationship.

1 20. The workstation of claim 19, wherein the at least one mounting plate
2 comprises a top tier narrower than a bottom tier, wherein the top tier is
3 inserted and received in the swing arm opening in a flush relationship while
4 the bottom tier is simultaneously inserted and received in the tongue and
5 groove relationship in the at least one channel.

1 21. A cordless power tool and workstation system for operating a cordless power
2 tool comprising:
3 the cordless power tool, the cordless power tool mounted to a workstation, the
4 workstation comprising:
5 a substantially planar work support platform configured to support a
6 work piece;
7 a substantially planar swing arm pivotally coupled to the work support
8 platform, wherein the swing arm is pivotable to any angle with
9 respect to the work support platform from 0° to approximately
10 90° for ease in mounting and dismounting the cordless power
11 tool;
12 a battery charging station coupled to the work support platform and
13 configured to removably connect to an external AC power
14 source, the battery charging station supplying DC power to the
15 cordless power tool;
16 an on/off switch coupled to the battery charging station regulating the
17 flow of DC power to the cordless power tool;
18 a safety switch coupled to the on/off switch regulating the flow of DC
19 power to the cordless power tool;
20 a power block coupled to the safety switch and removably connected
21 to the cordless power tool; and

1 a mounting plate to which the cordless power tool is removably
2 coupled, the mounting plate removably coupled to the swing
3 arm.

1 22. The system of claim 21, wherein the work support platform defines a
2 substantially rectangular platform opening through the work support platform,
3 the platform opening configured to removably receive the swing arm in a
4 flush relationship, and wherein the work support platform further comprises
5 one of at least one flange running at least partially along at least one internal
6 edge of the work support platform defining the platform opening upon which
7 the swing arm removably seats.

1 23. The system of claim 21, wherein the swing arm is a U-shaped platform
2 comprising a base member and a pair of spaced apart parallel arms defining a
3 swing arm opening, each arm extending perpendicularly from an end of the
4 base member.

1 24. The system of claim 23, wherein the swing arm comprises at least one
2 securing track coupled on a bottom face of the swing arm adjacent to at least a
3 portion of internal edges of the base member and the parallel arms.

1 25. The system of claim 24, wherein the at least one securing track comprises at
2 least one wall protruding perpendicularly outward from the bottom face of the
3 swing arm and an inwardly protruding flange member formed on the exposed
4 end of the at least one wall, thereby defining at least one channel between the
5 flange member, the wall, and the swing arm.

1 26. The system of claim 21, wherein the battery charging station comprises an
2 AC/DC converter and a battery charging module coupled to an output side of
3 the AC/DC converter, wherein the on/off switch is coupled to the battery
4 charging module, and wherein the workstation further comprises an AC plug
5 coupled to an input side of the AC/DC converter for removably coupling the
6 AC/DC converter to an external AC power source for supplying DC power to
7 the battery charging module for recharging or for supplying DC power to the
8 cordless power tool.

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1 27. The system of claim 26, wherein the battery charging module comprises a
2 power relay for directing DC power:
3 to charge at least one battery when removably coupled to the battery charging
4 module and when the AC plug is removably coupled to the external
5 AC power source;
6 to operate the cordless power tool when the AC plug is removably coupled to
7 the external AC power source; and
8 from at least one battery to the cordless power tool when the at least one
9 battery is removably coupled to the battery charging module and when
10 the AC plug is removably coupled to the external AC power source.

1 28. The system of claim 22, wherein the on/off switch is a rocker switch located
2 on a front external edge of the work support platform and the safety switch is
3 a pushbutton switch located on the at least one flange so that it is depressed
4 when the swing arm is pivoted flush with the work support platform and
5 released when the swing arm is pivoted away from the work support platform.

1 29. The system of claim 21, wherein the power block comprises a corded,
2 modular, insulated terminal block, with a cord end connected to the safety
3 switch and a free, terminal block end connected with the cordless power tool.

1 30. The system of claim 21, further comprising at least one battery removably
2 coupled to the battery charging station for supplying DC power to the cordless
3 power tool.

1 31. The system of claim 21, wherein the mounting plate is one of a plurality of
2 interchangeable mounting plates, each one configured to accommodate a
3 particular cordless power tool.

1 32. The system of claim 25, wherein the at least one mounting plate comprises a
2 top tier narrower than a bottom tier, wherein the top tier is inserted and
3 received in the swing arm opening in a flush relationship while the bottom tier
4 is simultaneously inserted and received in the tongue and groove relationship
5 in the at least one channel.

1 33. A method of installing a cordless power tool on a workstation for operation,
2 the workstation comprising a work support platform, a swing arm pivotally
3 coupled to the work support platform, a battery charging station coupled to
4 the work support platform, an on/off switch coupled to the battery charging
5 station, a safety switch coupled to the on/off switch, a power block coupled to
6 the safety switch, and a mounting plate, the method comprising:
7 removing a battery from the cordless power tool;
8 removably coupling the cordless power tool to the mounting plate;
9 removably coupling the mounting plate to the swing arm;
10 removably coupling the power block to the cordless power tool in place of the
11 battery of the cordless power tool;
12 pivoting the swing arm flush with the work support platform, thereby closing
13 the safety switch; and
14 operating the cordless power tool using the on/off switch.

1 34. The method of claim 33, further comprising:
2 removably inserting the battery of the cordless power tool into the battery
3 charging station for supplying DC power to the cordless power tool.

1 35. The method of claim 34, further comprising:
2 removably inserting a plurality of extra batteries into the battery charging
3 station for supplying DC power to the cordless power tool.

1 36. The method of claim 34, wherein the battery charging station comprises an
2 AC/DC converter and a battery charging module coupled to an output side of
3 the AC/DC converter, wherein the on/off switch is coupled to the battery
4 charging module, and wherein the step of removably inserting the battery of
5 the cordless power tool comprises removably inserting the battery of the
6 cordless power tool into the battery charging module for supplying DC power
7 to the cordless power tool.

1 37. The method of claim 33, further comprising:
2 removably coupling the battery charging station to an external AC power
3 source for recharging and for supplying DC power to the cordless
4 power tool.

1 38. The method of claim 37, further comprising:
2 removably inserting the battery of the cordless power tool into the battery
3 charging station for one of recharging and supplying DC power to the
4 cordless power tool when the battery charging station is not coupled to
5 the external AC power source.

1 39. The method of claim 38, further comprising:
2 removably inserting a plurality of extra batteries into the battery charging
3 station for one of recharging and supplying DC power to the cordless
4 power tool when the battery charging station is not coupled to the
5 external AC power source.

1 40. The method of claim 37, wherein the battery charging station comprises an
2 AC/DC converter and a battery charging module coupled to an output side of
3 the AC/DC converter, wherein the on/off switch is coupled to the battery
4 charging module, wherein an AC plug is coupled to an input side of the
5 AC/DC converter, wherein the step of removably coupling the battery station
6 to an external AC power source comprises removably coupling the AC/DC
7 converter to an external AC power source via the AC plug for supplying DC
8 power to the battery charging module for recharging or for supplying DC
9 power to a cordless power tool, and wherein the step of removably inserting
10 the battery of the cordless power tool comprises removably inserting the
11 battery of the cordless power tool into the battery charging module for one of
12 recharging and supplying DC power to the cordless power tool.

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